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FINANCIAL POLICIES AND ECONOMIC GROWTH: THEORY, EVIDENCE AND COUNTRY-SPECIFIC EXPERIENCE FROM SUB-SAHARAN AFRICA

PETER J. MONTIEL

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POUR LA RECHERCHE ECONOMIQUE EN AFRIQUE

Financial policies and economic growth: Theory, evidence, and country-specific experience from sub-Saharan Africa

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Financial policies and economic growth: Theory, evidence, and country-specific experience from sub-Saharan Africa

Peter J. Montiel
Oberlin College



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1 Introduction¹

The role of the financial system in determining macroeconomic performance has long been of concern to economists. In developing countries, this issue has typically been analyzed in the context of "financial repression," a term that refers to the web of legal restrictions under which the financial system has traditionally operated in many such countries. The literature on financial repression was triggered by the work of McKinnon (1973) and Shaw (1973), who advocated the removal of many of these restrictions - i.e., financial liberalization - as a growth-promoting policy in the Third World. While this policy prescription initially generated a substantial amount of controversy, many developing countries have adjusted their policies in the prescribed direction during recent years.

Unfortunately, not all of the experiences with liberalization have been favourable, and in several instances, the change over was followed by a financial crisis that led to the restoration of various restrictions. As a result, a new strand of literature has explored the conditions under which financial liberalization is likely to be successful. By and large, this new literature has stressed the important roles of macroeconomic stability as well as the presence of adequate supervisory and monitoring capacity on the part of the financial authorities.

Complementing these two strands of developing-country literature, the recent resurgence of interest among macroeconomists in the determinants of long-run economic growth has generated new analytical and empirical work on the relationship between financial intermediation and economic growth. This literature has revisited and expanded on the themes originally articulated by McKinnon and Shaw, while placing the entire discussion in the context of a new perspective on the growth process. Its empirical contributions have examined the links between financial intermediation and growth in a very broad context, including both industrial and developing countries.

All of these issues are of potentially great relevance for sub-Saharan Africa, where the reactivation of economic growth experienced of late in several other parts of the developing world has not yet been broadly felt, and where the identification of policies that can achieve such an acceleration of growth is of particular urgency, in view of the region's poverty and dismal recent economic performance.²

Accordingly, the purpose of this paper is to encourage an examination of the potential role of financial sector policies in the reactivation of economic growth in

sub-Saharan Africa. The paper provides an overview of what is currently known about the relationship between financial-sector policies and economic growth as well as about the state of such policies in sub-Saharan Africa. The paper is intended as a survey to motivate additional research, and as such does not provide new results. Instead, it attempts to weave the three strands of literature described above into a coherent paradigm, and to see where that paradigm leads us in addressing the issue of what types of financial-sector policies are most likely to prove conducive to growth in sub-Saharan Africa.

The paper is organized as follows: The next two sections present a synthesis of theory and summary of evidence, in that order. This is followed in Section III by an overview of accumulated country-specific research relevant to sub-Saharan African countries in particular. The paper's conclusions, offered in Section IV, are in the form of some proposed issues for research, motivated by the discussion in the three main sections.

Theory

General principles

To link financial intermediation to economic growth, recent contributors to the "new" economic growth literature have reconsidered the role of financial intermediaries.³ The new paradigm stresses the information-processing role of financial institutions.⁴

In a perfectly competitive Arrow-Debreu economy in which information is free and contracts are costless to negotiate and enforce, financial intermediation would be costless and efficient, and it could be carried out by individuals. The market would allocate income efficiently between consumption and saving, and then allocate saving efficiently across investment projects. For a potential investor, the cost of funds would be the same whether internally or externally generated, financial intermediation would absorb no real resources, and there would be no role for specialized financial institutions.⁵

What creates such a role is the existence of asymmetric information (possessed by the borrower, but not by the lender), as well as contract negotiation and enforcement costs. Under such conditions, uncollateralized external finance creates incentive problems, since the costs of a failed investment will not be borne entirely by the agent undertaking the project.⁶ Lenders thus extract a premium to compensate them for evaluation, monitoring, and contract enforcement costs. In this world, financial intermediation is likely to be undertaken by specialized institutions, rather than by individuals, because the information-gathering and processing functions are likely to be subject to large fixed costs, making it cheaper for such activities to be carried out by agents who undertake them on a large scale.⁷ Firms that specialize in this function also provide financing to investors.⁸ To do so, they must raise their own funds by borrowing from savers. Thus, financial institutions play two distinct roles. On the one hand, they identify the most promising investment projects and

monitor the behaviour of entrepreneurs. On the other, they channel resources from savers to investors.⁹

They are able to attract resources from savers because their liabilities offer attractive combinations of expected return, risk, and liquidity. All of these features arise from pooling. Asset pooling provides diversification, protecting savers from the idiosyncratic risks attached to individual projects and leaving them exposed only to systemic risk.¹⁰ Liability pooling permits intermediaries to fund lumpy, high-return projects that would be beyond the reach of individual savers. It also insures the intermediary against withdrawals, permitting it to offer assets of short maturity to savers. The existence of intermediaries thus permits the economy to undertake projects that have high expected return but are risky, lumpy, and illiquid.

How are these functions linked to economic growth? As emphasized by Gertler and Rose (1991), growth and financial development are mutually dependent. The level of per capita income partially determines the level of financial development, for at least two reasons. First, monitoring costs are likely to be inversely related to a borrowing firm's net worth, both because net worth can serve as explicit collateral for loans and because having their own assets at stake serves to align the incentives of investors more closely with those of lenders, even when those assets have not been offered as collateral. Second, costs of evaluating and monitoring loans, as well as those of enforcing contracts, depend on the availability of public goods in the form of an established system of property rights, suitable accounting standards, and an efficient judiciary.

Potential borrowers at low income levels have little net worth, thereby raising monitoring costs and creating a large premium on external finance necessary to compensate lenders for the cost of monitoring borrowers and enforcing financial contracts. At such income levels, availability of the public goods mentioned earlier is also likely to be low. Under these circumstances, self-finance and informal finance linked to social relationships are likely to dominate, since the cost of funds raised externally will be prohibitive.

As income grows, borrowers' net worth is likely to improve and the provision of public goods in the form of adequate legal institutions is likely to increase. Reliance on external finance will thus increase, but because collateral remains limited, substantial monitoring continues to be necessary and the dominant financial intermediary will be the commercial bank. Only at higher levels of income will borrowers' net worth be such as to support "arm's length" transactions involving little or no monitoring, thereby permitting the emergence of securities markets. Thus there is a large endogenous component to the level of financial development.¹¹

Financial development, on the other hand, also promotes growth. By providing the necessary funding, competitive financial institutions not only permit high-return projects to be undertaken. If these institutions are efficient and not subject to excessive taxation, they pass on the returns to their creditors, who may thereby be induced to save. Such institutions can thus potentially both enhance the efficiency of investment by allocating it properly and increase its volume. This direction of causation is explored in more detail below.

Financial development and growth

Consider, then, the growth effects of an innovation in financial development. In the context of the Solow growth model, the resulting increases in total investment and improvements in the allocation of investment would, with a given state of technology, result in a boost to the rate of economic growth while capital is being reallocated from less to more productive use and before diminishing returns drive the marginal product of capital down to its steady-state level. After the reallocation of capital has been completed and the steady state has been reached, growth would return to its natural level, albeit at a higher level of income per capita.

More sustained effects on growth are possible if the productive factor that the economy can accumulate endogenously is not subject to diminishing returns. To study the effects of financial development on growth in this setting, consider the simplest possible model consistent with endogenous long-run growth. This is one in which the aggregate production function is given by an "AK" technology (Rebelo, 1991), and the saving rate is constant:

$$Y = AK \quad (1)$$

$$\dot{K} = I \quad (2)$$

$$I = \Phi s Y \quad (3)$$

Here Equation (1) is the aggregate production function, with output proportional to the capital stock, and Equation (2) describes the dynamics of the capital stock. The final equation is the goods-market equilibrium condition, which equates saving to investment. The assumption is that the notional saving rate is constant, with a value given by the parameters, but that the process of financial intermediation absorbs a fraction $(1-\Phi)$ of all saving, which is diverted into consumption.¹² This model serves as a simple point of departure from which extensions are derived below to illustrate particular points.

The behaviour of economic growth implied by this model is:

$$\dot{Y} = A\Phi s. \quad (4)$$

Thus, innovations in financial development can alter the growth rate through three channels:

- Improved efficiency of intermediation (increased Φ).
- Improved efficiency of the capital stock, measured by increases in the parameter A .
- An increase in the saving rate s .

Whether a given innovation in financial development affects growth through any one (or more) of these channels depends, of course, on the nature of the innovation and the properties of the economy.

The role of financial policies

Because of the mutual interdependence between financial development and growth, the identification of innovations in financial development is not a trivial matter. Changes in financial-sector policies, however, are an identifiable source of such innovations. At a given level of income, and thus at a given stage of financial development, the efficiency of the financial system depends, among other things, on the policy environment. Thus, the adoption of policies to facilitate financial intermediation can be regarded as a form of "innovation" in financial development. To assess whether changes in policies directed to the financial system in developing countries are likely to affect growth through any of the channels mentioned above, it is necessary to consider the specific policies themselves.

Many developing countries are at a stage of financial development in which commercial banks are the dominant financial institution.¹³ As indicated above, policies directed to the financial system in such countries can often be summed up by the term "financial repression". As described by McKinnon (1973) and Shaw (1973), financial repression contains several key elements:

- Restrictions on entry into banking, often combined with public ownership of major banks.
- High reserve requirements on deposits.
- Legal ceilings on bank lending and deposit rates.
- Quantitative restrictions on the allocation of credit.
- Restrictions on capital transactions with foreigners.

One way of creating a policy-induced "innovation" in financial intermediation would be the removal of regulations such as these - i.e., the adoption of financial liberalization. The possible effects of financial liberalization on growth through the three channels previously identified are considered below.

Improved efficiency of intermediation

With improved financial intermediation, the portion of notional saving that is diverted by the financial system into "nonproductive" uses falls, and the rate of capital

accumulation consequently increases, for a given saving rate.¹⁴ The parameter $(1-\Phi)$ is an index, among other things, of the resource cost of operating the financial system. Restrictions to entry into the financial system, high required reserve or liquidity ratios, ceilings on interest rates, and the other regulations that together comprise financial repression, can each increase the costs of financial intermediation. The first of these permits firms in the financial system to extract monopoly rents from savers and borrowers, while the second extracts resources for the government. The third diverts intermediation into the informal financial system, where the scale of operation may be inefficient, or abroad, from where it may not find its way back into domestic investment.

Improved efficiency of the capital stock

The monitoring function of financial institutions described above takes the form of measuring the marginal product of capital in alternative activities. A simple extension of the model described above, due to Easterly *et al* (1992), illustrates the role that funding high-return projects can play in sustaining high rates of economic growth. Suppose that the aggregate capital stock consists of two types of capital, K_1 and K_2 , which can be transformed into each other at a constant rate (perhaps because they are both traded goods, or because they are each made in the same way from some currently produced good). By choice of units, let one unit of K_1 be convertible into one unit of K_2 . Thus the aggregate capital stock is $K_1 + K_2 = K$. Aggregate output takes the form:

$$Y = F(K_1, K_2) \quad (5)$$

a standard neoclassical production function with constant returns to scale. Dividing F by K_2 and defining $\theta = K_1/K_2$, the production function can be written as:

$$\begin{aligned} Y &= F(K_1/K_2, 1)K_2 \\ &= f(\theta) \frac{1}{(1+\theta)} K \\ &= A(\theta)K \end{aligned} \quad (6)$$

The effect is to make the productivity parameter a function of the allocation of the aggregate capital stock. Under present assumptions, the value of θ that maximizes A satisfies:

$$f'(\theta)\frac{1}{1+\theta}-f(\theta)\frac{1}{(1+\theta^2)}=0, \quad (7)$$

or:

$$f'(\theta)=f(\theta)-f'(\theta)\theta \quad (8)$$

which is the requirement that the marginal product of the two types of capital be equalized.

This outcome will emerge if financial institutions are able to identify the marginal product of capital in alternative uses, and channel funds in such a way as to give priority to high-productivity projects. It is less likely to emerge under financial repression, for a variety of reasons:

- Whether interest rates are controlled at below-market levels or not, banks have to screen prospective credit applicants. When loan rates are high, part of this screening function is performed by the price system, which in effect truncates the distribution of projects that apply for funds, leaving only those with expected returns in excess of the prevailing interest rate.¹⁵
- Low interest rates in the formal financial system are likely to create an informal financial market. When formal and informal financial markets coexist and some firms have unlimited access to the formal market, the marginal product of capital in these "favoured" firms will fall below the cost of borrowing in the informal system.
- The appropriation of funds by the public sector through the maintenance of high reserve requirements means that a portion of household saving will be channeled into government spending. To the extent that the government consumes these resources, Φ will fall. To the extent that they are invested in public capital, the associated projects may not yield returns in excess of the foregone investment in the private sector.
- Directed credit is often a component of financial repression, and favoured borrowers will by definition not be those that offer the highest prospective private returns on their projects, since otherwise they would have received funds anyway.¹⁶

- State-owned and subsidized banks will not have the competitive incentives to screen and monitor borrowers closely.

Increases in the saving rate

In the simple framework above, the saving rate is exogenous. To investigate the role of the financial sector in influencing aggregate saving, it is necessary to examine household saving behaviour. The upshot is that the effects of financial liberalization on household saving are ambiguous on theoretical grounds.

The most familiar framework for private saving is based on analyzing the behaviour of a representative agent with an infinite horizon and additively-separable preferences. In this case, if the utility function is of the constant relative risk-aversion (CRRA) type, the rate of growth of consumption over time is given by:

$$\hat{c} = \sigma^{-1}[A - \rho], \quad (9)$$

where the inverse of σ is the intertemporal elasticity of substitution, and ρ is the rate of time preference. With the same technology as before, from an arbitrary initial capital stock K_0 , the growth rate of output, consumption, and capital stock will eventually converge to the growth rate of consumption given by Equation (9), so we have:

$$\hat{Y} = \sigma^{-1}(A - \rho) \quad (10)$$

An increase in the real rate of return on capital A , then, is likely to twist the consumption path, depressing present consumption in favour of future consumption, to a degree that depends on the intertemporal elasticity of substitution.¹⁷ Whether household saving increases or decreases, however, depends on whether this effect dominates the positive income effect on current consumption emanating from a higher present value of lifetime resources.

Moreover, if utility is of the CRRA type, but the argument in the utility function is the excess of consumption over some subsistence level (rather than the level of consumption itself), then the intertemporal elasticity of consumption will be an inverse function of the initial level of consumption. This implies that "consumption twisting" in response to an increase in A will be weak in countries with low initial levels of per capita consumption. Further, this analysis assumes that financial liberalization affects household saving primarily through its effect of A . To the extent that it additionally serves to remove liquidity constraints faced by households under financial repression, this factor may lead to a reduction in saving.¹⁸

Interactions

Financial development may exert positive effects on growth by increasing the efficiency of the capital stock as well as by reducing the costs of operating the financial system. Effects operating through the saving rate are, however, theoretically ambiguous. It is worth noting that these channels of influence are not independent. In the basic model described above, for example, the adverse consequences of costs of financial intermediation for the growth rate depend on the volume of resources to be intermediated (s), as well as on the productivity of the investment foregone (A).

Financial liberalization

The preceding can be taken as a description of the ways in which having a well-functioning, liberalized financial system may enhance economic growth relative to a situation in which the financial system is repressed. In other words, the description of potential channels of influence from an innovation in financial development to growth is based on a comparison of likely growth outcomes in two different financial-system equilibria. Two important questions are left unanswered in this analysis, however. First, given that a repressed financial system suffers from an excessively heavy government hand, what is the residual role of the government in a well-functioning system? Second, how does one achieve the transition from one type of system to the other?

The role of government

The paradigm described above makes it possible to specify a set of conditions that are conducive to the efficient functioning of the financial system. The maintenance of such conditions is the province of the government, so their specification provides one way to describe the minimal role of government. Such conditions include:

- The existence of an appropriate legal framework, including well-established property rights as well as an efficient judicial system.
- The existence of a financial safety net (explicit or implicit deposit guarantees) to avoid liquidity crises.
- The existence of an adequate regulatory and monitoring framework to prevent collusion and avoid excessive risk-taking due to moral hazard problems.
- The existence of an at least potentially successful borrowing class.
- A fiscal adjustment to replace the revenues previously received from financial repression.

The government has a role to play in establishing all of these conditions. The first three have to do with the institutional framework, while the last two relate to the macroeconomic environment.

An appropriate legal framework is one in which property rights are well established, adequate accounting standards are in place, and the judicial system functions effectively to enforce contracts and punish fraud. Such a framework facilitates the use of collateral and lowers the costs of both monitoring and contract negotiation and enforcement. These circumstances combine to reduce the premium for external finance and thus expand the role of financial intermediation.

Even in a deregulated financial system, it may be necessary for the government to operate a financial safety net in the form of an implicit deposit insurance system. The likelihood of financial panics under imperfect information, and the role of banks in the payments mechanism, probably mandate this result. However, if deposit insurance is improperly priced, even a competitive financial system could malfunction after liberalization unless it is adequately supervised, due to moral hazard problems. Moral hazard problems may arise, if the cost of deposit insurance to banks is unrelated to the riskiness of their portfolios. Bank shareholders then have much to gain and nothing to lose by undertaking risky lending, in effect making a one-way bet with the government. In the event of default, depositors are compensated by taxpayers, while in the event of unusual profits, stockholders reap the gains. Making the deposit-insurance system explicit and charging banks a fee in accordance with the riskiness of their portfolio may be the only way to avoid moral hazard problems.

An effective supervisory and monitoring function would complement this, inducing liberalized institutions to behave in prudent fashion by monitoring their portfolios, ensuring that appropriate provisions are made against suspect loans, and that bank capital is adequate. A separate dimension to the government's regulatory function is the prohibition of collusion. In the absence of foreign competition (capital mobility), freeing the domestic financial system could result in noncompetitive behaviour, with low deposit rates and high lending rates providing substantial profit margins to colluding institutions. This would be more likely in countries with limited access to external finance, strong domestic banking associations, and limited supervisory mechanisms.

The requirement that a class of successful borrowers be in place means at the very least that times of macroeconomic crisis are not auspicious for financial liberalization. Beyond this, however, it may also require the implementation of structural measures to foment a vigorous private sector.

Finally, if other forms of revenue are not in place to replace those that the government was previously receiving from financial repression, inflation is the likely result. For a variety of reasons, the emergence of inflation may undermine the very growth process that financial liberalization is intended to promote. Thus, fiscal adjustment is an important component of financial liberalization.

Financial transition

Though theory tells us that a well-functioning financial system can make an important contribution to fostering economic growth, the process of financial liberalization may prove to be difficult. Without the necessary preconditions in place, financial liberalization can go wrong, and not only may the favourable growth outcomes not be achieved, but the financial system may itself become a source of macroeconomic problems that undermine economic growth.

The combination of macroeconomic instability, weak bank supervision, and freed interest rates seems most conducive to negative growth effects.¹⁹ Macroeconomic instability increases the variance and covariance of a given set of projects in banks' portfolios, and weak supervision in the context of free (or underpriced) deposit insurance creates incentives for banks to endogenously increase the riskiness of the lending they choose to undertake. A strategy of paying high interest rates to attract deposits, and then investing these funds in high-risk projects with low expected returns, may maximize expected returns to the owners of the banks. When banks fail, the combination of macroeconomic crisis and lost information capital contributes to lower and poorer quality investment and reduced growth.

With these considerations in mind, a sensible four-step liberalization sequence is proposed by Turtleboom (1991):

1. Proceed simultaneously in restoring macroeconomic equilibrium and restructuring or liquidating insolvent financial institutions. The latter process should be initiated early, because it is likely to take time.
2. Introduce indirect instruments of monetary controls with freely-determined interest rates, such as treasury bills sold at auction. At the same time, establish supervisory guidelines regarding loan classification, provisioning for bad debt, interest rate capitalization, capital adequacy, and limits on portfolio concentration.
3. Increase competition by granting more bank licenses, permitting the entrance of foreign banks, and privatizing government-owned banks.
4. Remove interest rate controls and direct credit ceilings.

This sequence involves putting the institutional and macroeconomic conditions in place before liberalization proper (in the form of step 4) is attempted.

II Evidence

Evidence on the links between financial intermediation and growth takes a variety of forms. King and Levine (1993) cite four such types of evidence:

- Cross-country growth regressions;
- Country case studies;
- Industry studies; and
- Studies of the effects of structural adjustment.

Each of these will now be considered in turn. The coverage is not symmetric, however, because the evidence has been dominated by cross-country growth regressions and country case studies.

Cross-country growth regressions

The advent of the new growth theory has given rise to an outpouring of research in the form of regressions attempting to explain cross-country growth experience, following Barro (1991). The dependent variable in such regressions generally consists of the average growth rate registered by individual countries over some extended period of time. Explanatory variables typically include the initial level of per capita GDP, a human capital measure such as the secondary school enrollment rate, and a measure of political stability. Regional dummies, usually for Latin America and sub-Saharan Africa, are often included as well.

The effects of particular policy variables on the long-run growth rate are then tested by adding the relevant variable to the "core" regression, to see whether the variable exhibits a significant partial correlation with the average growth rate. If so, then the question arises as to whether the relevant variable affects the growth rate primarily by inducing greater accumulation of productive resources or by enhancing the efficiency of resource use. This is tested by adding the investment rate to the growth equation and determining whether the coefficient on the relevant variable retains its sign and statistical significance. If so, then an efficiency effect is detected. If not, and if the variable is significant in an equation similar to the "core" regression but with the investment rate as the dependent variable, then its association with growth is attributed to a resource-accumulation effect.

Several such exercises have been conducted with a focus on the role of financial development. The methodology involves adding an indicator of the adequacy of financial intermediation either to the core regression or to one that includes other potential determinants of growth, such as openness, government size,

the conduct of monetary policy, etc. A large number of variables has been used as proxies for financial development. The list includes:

- a. Indicators of financial depth, such as the ratios of narrow (M1) and broad (M2) money, of quasi-money, and of liquid liabilities (currency outside banks plus demand and interest-bearing liabilities of banks and nonbank financial intermediaries) to GDP.
- b. The share of financial intermediation done by commercial banks (measured by the ratio of deposit money bank domestic assets to the domestic assets of deposit money banks and the central bank together, as in King and Levine, 1992, 1993).
- c. The volume of lending to the private sector, measured by ratio of flow of credit to the private sector to GDP, as in De Gregorio and Guidotti (1992), or by the share of total domestic banking-system credit extended to the private (as opposed to the public) sector (King and Levine, 1992, 1993).
- d. Direct indicators of financial repression, such as the reserve ratio (Roubini and Sala-i-Martin, 1992a), or the ex post real interest rate (Gelb, 1989), King and Levine (1992)).

What can we learn from such studies?²⁰ As argued by Levine and Zavis (1993), the best we can hope for is to extract a set of suggestive empirical regularities from the data. Such studies suffer from several methodological difficulties. The most obvious of these is heterogeneity among countries. This means that what can emerge at best is an "average" relationship, not particularly applicable to any single country. A second serious problem with cross-country growth regressions is the lack of robustness of the results. That is, the variable of interest may cease to enter the regression with a coefficient that bears the theoretically-expected sign and is statistically significant once other "reasonable" variables are added to the growth regression.²¹ Unfortunately, few of the variables typically included in such regressions exhibit this property.

Even if such estimates can be shown to be robust, what the parameters measure is the strength of a partial correlation. Policy interpretations are problematic. The first problem concerns direction of causation. In cross-country regressions this is an open issue. Thus a positive and significant sign on a financial indicator is consistent with the theory discussed above, but need not suggest that financial liberalization promotes growth.²² Finally, even if one is willing to posit causation from the financial variable to growth, the explanatory variable typically included is not a policy variable, but a performance indicator that is endogenous to policy. Thus the coefficient cannot be interpreted as revealing the long-run growth effect of a given change in policy.

All of this being said, some of the existing work has addressed these problems.

Heterogeneity has been tested by including slope and/or shift dummies for regions; robustness has been investigated through sensitivity analyses; and causation has been addressed by using initial values of explanatory variables, rather than average values during the sample period. Finally, alternative proxies for policy have been tried. A selection of recent work that has confronted these problems is reviewed below.

A recent paper by Roubini and Sala-i-Martin (1992b) examined alternative indicators of financial repression (a real interest rate dummy, the reserve ratio, and inflation). The paper found them all to be negatively correlated with growth in a regression that controlled for standard Barro (1991) growth determinants for a large cross-country sample of countries. Interestingly, Barro's finding that growth performance in African countries was not fully explained by his standard set of explanatory variables (because a dummy for Africa was significant in his growth regression) remained when both trade and financial distortions were added to these determinants by Roubini and Sala-i-Martin. The latter did not test, however, whether the coefficients of their financial variables differed for Africa.

The most comprehensive study of the cross-country type that addressed the robustness issue is by King and Levine (1993). In a sample of 77 countries with data averaged from 1960 to 1989, these authors found that their financial indicators were closely correlated with each other as well as with measures of GDP growth, capital accumulation, and total factor productivity. In standard cross-country growth regressions applied to each of these growth indicators, they found that, when entered separately, the average value of each of the financial indicators was statistically significant at the 5% level. These results were confirmed with pooled cross section time series regressions using decade averages and instrumental variables techniques. They also found that initial financial depth helped to explain subsequent growth performance, again using a variety of indicators both of growth as well as of financial depth. All of these results tended to be robust across samples of countries and time periods, as well as with respect to the set of other explanatory variables included in the regressions. In particular, the results were the same for sub-Saharan African countries as for the full sample.²³

Finally, King and Levine (1992) explored the channels of influence between financial development and growth. Using the same indicators of financial depth as King and Levine (1993), they found that average financial depth was robustly correlated with both the investment/GDP ratio and a measure of the efficiency of investment (the inverse of ICOR) in a cross-section sample, while initial financial depth was insignificantly correlated with both. In pooled cross-section time series regressions, financial size was *positively* correlated with the investment share, but *negatively* correlated with the efficiency of investment. In this sample, both the share of deposit money bank assets in total assets and the share of banking-system assets allocated to the private sector were positively and significantly correlated with growth through the investment channel in cross section, and through both the investment and efficiency channels in the pooled regressions.

Country case studies

Most of the recent empirical work on this issue has taken the cross-country approach outlined above. What little country-specific evidence exists tends to be in the form of country case studies. The methodology is descriptive, and the effects of reforms are typically based on before-and-after examination of the data, thereby failing to control for other influences on the variables of interest. An extensive older literature of this type analyzed the financial liberalization experience of the Southern Cone countries in South America. As already indicated, this literature's conclusions were that the liberalization effort failed there because the process was undertaken in an unstable macroeconomic setting and under an unsatisfactory regulatory framework.

The experience of Asian countries is less well known. An overview of financial liberalization in several of these countries during the 1980s is provided in Tseng and Corker (1991), as well as the World Bank (1994a). The experience of these countries can be summarized as follows:

- The *scope* of liberalization has been broad. Liberalization was accompanied by measures to promote competition, such as increased freedom of entry, expanding the scope of permissible activities for different institutions, and relaxing restrictions on foreign banks. The supervisory framework for the financial system was typically strengthened by centralizing supervisory responsibilities, developing and unifying the regulatory framework (as well as extending it to nonbanks), and providing explicit deposit insurance. Money markets were fostered by creating new instruments (such as central bank and government securities) with flexible interest rates.
- However, the *pace* of liberalization in Asia has been gradual, and sometimes partial. Interest rates, for example, were not always fully liberalized. Sometimes (as in Korea, Malaysia, and Thailand), managed rates were simply adjusted more frequently. Also, while total credit controls were eliminated, sectoral credit allocation requirements and selective rediscounting remained in place for some time in many of these countries.
- The financial results of liberalization have not been disruptive, as they were in the Southern Cone. Liberalization of interest rates tended to increase nominal rates, but not necessarily enough to establish positive real rates. In some countries (Indonesia and Malaysia) positive real rates were attained by changes in nominal rates, while in others (Korea, Nepal, the Philippines, Sri Lanka, and Thailand), positive rates were achieved through a reduction of inflation. Yet in all of the liberalizing countries, positive real rates followed liberalization, and financial deepening followed in most of them.

Whether liberalization has been accompanied by desirable growth effects is another matter entirely. The difficulty, of course, is in controlling for other factors that were influencing macroeconomic performance in the liberalizing countries at the same time.

Country-specific work on the issue of financial reform has not been associated with the new growth literature, with few exceptions. King and Levine (1993), for example, looked at the behaviour of their financial indicators before and after financial reforms in five countries. They found that all four indicators increased, and that the ratio of currency to demand deposits fell, in Argentina, Chile, Indonesia, Korea, and the Philippines. During all episodes but one, the real interest rate also rose after the reform. Again, these authors did not try to link these phenomena with subsequent growth performance.

Firm-level studies

A small number of studies have examined the effect of financial liberalization on the distribution of bank credit among firms of varying degrees of efficiency. Such studies use firm-level data to estimate production functions, and then measure each firm's technical efficiency by looking at how far it is from the production frontier. Several studies of this type, cited in King and Levine (1993), found that financial liberalization tended to redirect credit to the more efficient firms.

Structural adjustment

The role of financial institutions as described in Section I suggests that structural adjustment measures are more likely to promote growth under a well-functioning financial system, and that a given set of growth-enhancing measures is more likely to be successful if accompanied by a financial reform. Thus King and Levine looked at the relationship between their financial indicators and the success of World Bank adjustment lending. They found that intensive-adjustment-lending countries with better initial financial depth tended to grow faster during the subsequent five years. This relationship held up after correcting for other growth determinants.

III Sub-Saharan Africa: Country-specific experiences

Theory and evidence, then, suggest that a well-functioning financial system, perhaps achieved by removing financial repression through a judicious financial liberalization, can make an important contribution to the stimulation of economic growth. What is the scope for a favourable policy-induced innovation to financial development in sub-Saharan Africa? This depends on the institutional and policy conditions currently prevailing among the countries in the subcontinent. These issues are addressed in this section, which deals with the 1) structure of the financial system in sub-Saharan African countries, 2) the nature of policies directed to the financial system, and 3) the experience with financial liberalization in the region.

Financial structure

Information on the financial structure of sub-Saharan African countries is not widely available. The overview presented here is based on country-specific information for six countries, described in an appendix.²⁴ Overall, the financial systems in these countries fit the paradigm outlined previously rather well. The countries in the region are among the poorest in the world, and their stage of financial development is one where net worth and collateral availability among borrowers is such that external finance continues to be tied to evaluating and monitoring functions on the part of lenders.

By and large the formal financial sectors of these economies are dominated by a small number of commercial banks.²⁵ Non-bank intermediaries tend to be small and few in number. Stock exchanges exist in some countries, but do not account for a significant share of financing of business enterprises. In the commercial banking sector, deposits tend to be concentrated in the few largest banks, and public ownership of the most important banks is common.²⁶ The regulatory structure is not always well developed and is sometimes splintered, with banks and non-banks subject to very different regulatory environments. According to the World Bank (1994b):

Bank supervision is essentially nonexistent in countries where the banking system has been nationalized. Even in countries with nominally private banks, there may be a conflict of interest because members of the supervisory agencies often sit on the boards of the banking institutions. In most instances, prudential ratios have been ineffective in preventing the degradation of loan portfolios. The ratios

sometimes were poorly designed or lacked rules for classifying credit according to risk, for defining and handling delinquent loans (p. 114).

Moreover, directed credit is common, and the quality of bank portfolios is often poor. Banks in some countries appear to hold substantial amounts of excess reserves. An informal financial sector characterized by small-scale transactions, and often based on preexisting social and economic relationships, parallels and complements the formal one. Data on its magnitude are scarce, but the opinion is that it may be quite large in several countries.²⁷

Financial policies

As indicated previously, governments resort to financial repression primarily as a form of taxation. The government uses the financial system as a way to extract resources by levying an inflation tax on currency, by direct borrowing from banks at less than market rates through the imposition of interest rate ceilings, and by coopting resources through unremunerated reserve requirements. One way to detect the prevalence of financial repression, then, is to measure the volume of resources extracted from the financial system through these means. This was recently done for a broad group of countries by Giovanninni and De Melo (1993), for five sub-Saharan African countries by Chamley and Honohan (1990), and for eight such countries by Ikhida (1992).

Giovanninni and De Melo estimated the revenue from financial repression by calculating the interest saving on central government domestic debt achieved by countries that used financial repression to keep domestic interest rates below the external cost of funds. Unfortunately, their sample included only two sub-Saharan African countries, Zaire and Zimbabwe. For both of these countries, however, financial repression made an important contribution to government revenues, amounting to 2.5% of GDP in Zaire during 1974-86 and about 19% of GDP in Zimbabwe during 1981-86.

Chamley and Honohan constructed a broader measure of the revenues derived from financial repression. They estimated the volume of resources extracted from the financial system through implicit and explicit taxation by using the following formula:

$$\text{TAX} = (R^* - 0.01) * \text{CURRENCY} + (R^* - \text{RRES}) * \text{RESERVES} + (R^* - \text{RTB}) * \text{GOVTBOR} + (R^* - \text{RTB} + \text{MARGIN}) * \text{NONGOVTBOR} + \text{INDIRECT TAXES}$$

Here R^* is an estimate of the market-clearing risk-free interest rate that would prevail without interest rate ceilings, RRES is the rate of remuneration on reserves, RTB is the bank lending rate, MARGIN is an assumed risk premium for private borrowers, and GOVTBOR and NONGOVTBOR are the stocks of loans outstanding to the government and nongovernment sectors, respectively. Estimates of TAX were calculated for five sub-Saharan African countries (Cote d'Ivoire, Ghana, Kenya,

Nigeria, and Zambia) over the period 1978-1988.

Total tax revenues derived in this fashion were in the range of 4-7% of GDP for Ghana, Nigeria, and Zambia, and of 2% for Cote d'Ivoire and Kenya. These figures compare with total tax revenue in the range of 10-25% of GDP for sub-Saharan African countries, leading the authors to conclude that:

By any reckoning, the financial sector has been very heavily taxed in comparison with other sectors. For instance, the average tax collected has in all cases exceeded the value added of the banking system. Even excluding the currency tax, which does not bear directly on the banking system, the average tax collected has been a multiple of the value added of the banking system in the three high-tax countries (p. 16).

These results are supported by those of Ikhide (1992), who focused only on implicit taxation in the form of unremunerated reserve requirements. He found that such reserves were significantly higher in the eight sub-Saharan countries in his sample than is typical in OECD countries, and that the implicit tax on the financial sector just from this source ranged from about 1.5% of GDP in Tanzania to about 7.5% in Ethiopia. In five of the eight countries he examined, this amounted to more than a quarter of government revenue.

In sum, the available evidence paints a consistent picture. Using the magnitude of government revenue from financial repression as an indicator of the intensity of repressive policies toward the banking system, the historical record suggests that sub-Saharan African countries fit squarely within the financial repression paradigm.

Financial liberalization

As indicated previously, financial liberalization can in principle include a variety of measures, such as interest rate liberalization, the establishment of freedom of entry into and procedures for orderly exit from the banking industry, the reduction of reserve and liquidity requirements, the elimination or minimization of credit allocation directives, and the elimination of preferential credit at concessional interest rates.

By and large, financial liberalization has taken place in Africa only very recently (since the mid-eighties). The adoption of some form of liberalization or bank restructuring measures has been fairly widespread,²⁸ and a partial list of recent measures is provided in Table 1.²⁹ In addition to the countries listed in the table, interest rates had been freed by the end of 1992 in Burundi, Madagascar, Mauritania, and Zambia. Many other countries moved from setting rates to setting minimum deposit and maximum lending rates, or to regulating spreads.

However, low positive real interest rates have not been the rule after liberalization. Countries have tended either to continue to have negative interest rates

Table 1 Financial liberalization in sub-Saharan Africa

The Gambia (September 1985):	Ceilings on interest rates were removed in September 1985, an auction system for issuing Treasury bills was introduced in July 1985, and quantitative controls on credit were removed in September 1990.
Nigeria (July 1987):	Directed credit restrictions were relaxed over the period 1983-1987 by increasing the sectoral aggregation of directed credit allocations. On July 31, 1987, the central bank removed interest rate controls, and raised both the treasury bill and rediscount rates by 4% points, to 15 and 14%. In November 1989, an auction system was instituted for treasury bills and certificates but, the central bank retained a reservation price.
Ghana (September 1987):	Ceilings on interest rates were removed, while the removal of quantitative credit controls was scheduled for 1992.
Malawi (April 1988):	Ceilings on interest rates were removed, and quantitative credit ceilings were eliminated in January 1991.
Uganda (July 1988):	In July 1, 1988, an increase of 10% points was announced on most interest rates.
Benin and Côte d'Ivoire (October 1990):	The BCEAO abolished its preferential discount rate, but bank interest rates remained subject to regulation. Côte d'Ivoire is also a member of the BCEAO, so it was affected by these liberalizing measures.
Cameroon (October 1990):	The BEAC eliminated its preferential lending rates, simplified its interest rate structure, and increased its power to determine interest rate policy with the intention to move toward greater flexibility in rates.
Tanzania (July 1991):	The system of fixed interest rates and fixed differentials was replaced by a single maximum lending rate of 31% on July 25.
Kenya (July 1991):	Interest rate ceilings were removed

or, in the case of those with fixed exchange rates and currencies that have been overvalued, high positive rates. In part this may reflect the incomplete nature of the liberalization. In the case of the Central Bank of the West African States (BCEAO) of the West African Monetary Union, for example, the abolition of the bank's preferential discount rate in October of 1989 left interest rate controls in place. The same was true of the Central Bank of the Central African States (BECEA), which abolished its preferential discount rate in October 1990. While Nigeria removed interest rate controls in July of 1987 and introduced treasury bill auctions in November 1989, it continued to exert influences over interest rates through the reservation prices set by the central bank. Some adjustments to previously fixed interest rates were recorded in Tanzania in 1991 and Uganda in 1988, but neither country moved immediately to flexible interest rate determination. Other possible explanations for the behaviour of real interest rates after liberalization are lack of competition due to the small number of banks and the continued role of government-owned institutions.³⁰

In addition to the behaviour of real interest rates, widening spreads between lending and deposit rates appear to have been a problem in several sub-Saharan African countries that liberalized interest rates during the 1980s (Gambia, Ghana, Malawi, and Nigeria, according to Turtleboom, 1991). Again, lack of competition is a possible explanation, as is the continued presence of nonperforming loans.

Regarding the latter, the experience with bank restructurings also appears unfortunately not to have been favourable. Recapitalization operations have tended to be expensive, recovery of nonperforming assets has been poor, and restructuring operations have had to be repeated in several cases (World Bank, 1994b). In Ghana, for example, nonperforming assets restructured under a plan undertaken in 1989 amounted to 41% of total bank credit to the non-government sector (Kapur *et al.*, 1991).

IV Researchable issues in the African context

The force of theory and evidence from Sections I and II suggests that financial development can contribute to economic growth in the long run. The country-specific evidence for sub-Saharan Africa presented in Section III, on the other hand, suggests that most sub-Saharan African countries are at an early stage of financial development where commercial banks continue to dominate the formal financial system, the number of banks is small, and government ownership of banks is common. Policy toward the banking sector in these countries, moreover, has tended to fit the general characteristics of financial repression. Finally, financial liberalization, though recently undertaken in various countries of the region, has been tentative and has thus far not appeared to be very successful. Thus, in the long run further financial liberalization is likely to be desirable in sub-Saharan Africa.

As argued in the last part of Section I, however, successful financial liberalization presents a difficult and multidimensional policy challenge. The issue confronting policy makers in sub-Saharan Africa, therefore, is not whether further financial liberalization is desirable, but rather when and how it should be brought about.

The contributions that research can make to answering these questions are unlikely to come from further cross-country work. Some interest attaches to assessments of whether Africa is different in cross-country studies along the financial dimension, i.e., whether financial variables appear to have the same effect on growth in Africa as they do elsewhere. The available evidence (King and Levine, 1993) suggests they do, but in view of the difficulty in explaining the Africa dummy in cross-country growth regressions, this issue may merit further study. The results of such studies may assist policy-makers if they help to identify the conditions under which financial repression will be particularly costly or, conversely, under which financial liberalization can be particularly beneficial, since this could help to assess the urgency of further movement in the direction of liberalization for specific countries. But such studies are unlikely to help in the design of intensified financial liberalization strategies for sub-Saharan Africa.

A higher research priority should go to country-specific work. Here the first order of business might be to study the experience of countries such as those listed in Table 1 — i.e., those countries that have already begun to liberalize their financial systems — to draw lessons for how liberalization should proceed. The post-liberalization behaviour of real interest rates and of spreads between borrowing and lending rates needs to be understood, as do the problems associated with restructuring. Are low real interest rates due to the absence of competition, or to incomplete liberalization? Are the high spreads due to collusion, to the presence of nonperforming loans in the portfolio, or to some other cause? Why have restructured

banks gotten in trouble again? What has happened to the revenues from financial repression in liberalizing countries? Has the appropriate magnitude of fiscal adjustment accompanied these revenue changes? If not, how has macroeconomic performance been affected? The answers to these questions are likely to be of great interest to countries in sub-Saharan Africa contemplating intensifying the process of financial liberalization.

Beyond this, research should focus on assessing whether the preconditions for successful financial liberalization are indeed in place in countries where the process has not yet begun or for more complete liberalization where moves have been partial. This could involve various components:

- a. Description and measurement of regulatory taxation of the financial system. The purpose would be to measure the severity of remaining financial repression as well as to identify the required forms of liberalization. More importantly, however, it would help to quantify the size of the fiscal adjustment required to compensate for losses of financial repression revenues as liberalization proceeds.
- b. Evaluation of the practice and economic rationale for directed credit. In particular, the focus should be on whether there is any scope for directed credit in a reformed and liberalized financial system, based on high social (but not necessarily private) rates of return, or on incentive effects of credit availability.
- c. Evaluation of the institutional framework. This involves identification of possible improvements in accounting standards (to facilitate monitoring), in the system of property rights (to permit borrowers to offer collateral), of the costs of contract enforcement (efficiency and impartiality of the court system), as well as analysis and evaluation of the existing system of bank supervision.
- d. Analysis of the industrial structure of the financial system, including types of institutions, number of banks, ownership of banks, sizes and roles of the non-bank sector and the informal market. The goal would be to identify possible barriers to entry and the scope for collusion.
- e. Assessment of the scope for disciplining the behaviour of a liberalized banking system through capital mobility. This is obviously related to (d), since both have to do with the likely competitive structure of a liberalized domestic financial system.

This list is narrowly focused on the workings of the financial system itself. Missing from it is any reference to assessing the potential health of the domestic private sector. While this topic is much too broad to include in a list of "researchable issues," it may well be the most important from a policy standpoint. As indicated previously, the success of financial liberalization and the emergence of a successful

borrowing class are interdependent. Thus the identification of real-sector policies conducive to the creation of a vigorous private entrepreneurial class is also an important research issue in the area of financial development.

Appendix: Financial structure in selected African countries

The summary description of financial structure in sub-Saharan Africa is based on a sample for six countries for which this information was available. These countries are Ghana, Gambia, Kenya, Nigeria, Malawi, and Tanzania.

Ghana

The formal financial system in Ghana consists of 13 commercial and secondary banks, some small rural banks, 20 insurance companies (not regulated by the banking law), and a small (11 listed companies) stock exchange, that began operations in November 1990 (see Kapur *et al.*, 1991). As of the end of 1990, the three largest banks contained 73% of all bank deposits, and the government and the Social Security National Insurance Trust had a majority stake in 8 of the 13 banks. A large number of nonperforming assets led to an attempt to upgrade the financial system under a financial sector reform program that has been under way since early 1988. According to Nissanke (1991), the informal financial sector plays an important role in Ghana, with informal financial saving amounting to about 2% of GDP. The functioning of the informal sector in Ghana is described by Aryeetey (1992).

Gambia

The financial system in Gambia consists of four commercial banks, a postal savings bank, two insurance companies, and the Social Security and Housing Finance Corporation. The largest bank was government-owned up to 1992 (it was sold in June of that year), and controls 44% of deposits. As in Ghana, restructuring of the assets of the financial system has been under way since 1988 (see Hadjimichael *et al.*, 1992).

Kenya

Kenya has a much larger financial sector than Ghana or Gambia, consisting of 88 banks, many non-bank financial institutions, and a long-established, but still small, stock exchange. The largest commercial bank is government-owned. The banks and non-banks are regulated separately, but a Deposit Protection Fund set up in 1986 protects deposits in both types of institutions.

Nigeria

Nigeria has a large banking system, consisting of 109 banks. The top five banks, however, account for 47% of all deposits. The federal and state governments control 40% of the commercial banks. There is a vigorous stock exchange, but most capital is still raised through the banking system.

Malawi

Malawi has two commercial banks, three development finance institutions, two finance houses, the New Building Society, the Post Office Savings Bank, some insurance companies, and the Malawi Union of Savings and Credit Cooperatives, an umbrella organization for 58 credit unions.³¹ Both commercial banks are government-controlled, and they held 68% of the total assets of the formal financial system as of 1987. Little harmonization exists in the regulatory framework among the banks and non-banks. Nissanke (1991) reports that informal sector lending to the private sector in Malawi was at least three times as great as that of the formal sector. Supporting evidence is provided by Chipeta and Mkandawire (1992).

Tanzania

The formal financial sector in Tanzania consists of three commercial banks, three near-banks, two insurance companies, and several development finance companies (Hyuha *et al.*, 1993). Though estimates of the relative size of the informal financial sector are not available, survey data collected by Hyuha *et al* suggest that informal finance plays an important role in the economy.

Notes

1. I am thankful to Jose De Gregorio, Mohsin S. Khan, Se-jik Kim, and the participants in an AERC workshop for their comments on an earlier draft. Remaining errors are my responsibility.
2. See World Bank (1994b).
3. See, for example, Gertler and Rose (1991), on which the discussion that follows is based.
4. In keeping with this view, Stiglitz (1993) refers to the financial sector as the "brains" of the economy.
5. As emphasized by Gertler (1987), this is a consequence of the Modigliani-Miller theorem on the indeterminacy of financial structure in an Arrow-Debreu world.
6. Borrowers have an incentive to appropriate the resources provided by the lenders by, for example, shirking. This would then be disguised by misrepresenting the outcome of the project.
7. Such costs may include, for example, the acquisition of expertise required to evaluate any investment project; but once acquired, it can be applied to evaluate new projects at low marginal cost.
8. Why don't such firms simply sell this information to potential lenders? One possibility is that the information is not worth much to potential buyers who cannot independently corroborate.
9. See also King and Levine (1993).
10. By making their liabilities more attractive, this lowers the cost of external funds for intermediaries.
11. This direction of causation also holds in the short run. When the macroeconomic environment is favourable, borrowers' net worth will be increased and the cost of financial intermediation will be lower.
12. This formulation is taken from Pagano (1993).

13. This is the case in sub-Saharan Africa, as shown in Section III.
14. In effect, saving by the household sector is partly offset by financial-sector dis-saving.
15. A counter-argument, however, is that adverse selection and adverse incentives may reduce the quality of prospective borrowers at higher interest rates. See Stiglitz (1993).
16. Again, Stiglitz offers a counter-argument. The social return on projects receiving directed credit may exceed their private returns (Stiglitz, 1993).
17. Moreover, for a given value of A , anything that increases the extent to which this rate of return is passed on to savers (e.g., low reserve requirements, more competition) will similarly affect the consumption path.
18. See Japelli and Pagano (1994).
19. See Villanueva and Mirakhor (1990).
20. A systematic analysis of the problems associated with the application of cross-country regressions to learn about the effects of policies on growth is given by Levine and Renelt (1991).
21. See Levine and Renelt (1991).
22. One way to ease this problem is to include only initial values of financial indicators on the right-hand side.
23. Levine and Zervos (1993) replicated these results using an alternative "core" regression.
24. The descriptions in the appendix were primarily based on a study of five African countries by Turtleboom (1990). See also Nissanke (1991), as well as the AERC studies cited in the appendix.
25. According to the World Bank (1994b), most countries have less than ten banks, and only Côte d'Ivoire, Kenya, Nigeria, Zambia, and Zimbabwe have six or more private banks.
26. In 1990, the government was the majority owner of all banks in Congo and Tanzania, and in Burkina Faso, Burundi, the Central African Republic, Gabon, Mauritania and Malawi, the government held a stake in all banks (World Bank 1994b).

27. For descriptions of the role of the informal financial sector in sub-Saharan Africa, see Aryeetey (1992), Chipeta and Mkandawire (1992), Aredo (1993), and Hyuha *et al.*, (1993).
28. The World Bank (1994b) lists a total of 19 sub-Saharan African countries that have undertaken some form of liberalization measure in the financial sector since the mid-eighties.
29. The information in Table 1 is drawn from Turtleboom (1991) and Galbis (1993).
30. The World Bank (1994b) reports that the number of commercial banks in sub-Saharan Africa in which the government retains a majority share fell from 108 in 1982 to 1989 in 1992.
31. As reported by Nissanke (1991).

References

- Aredo, D. 1993. "Informal and Semi-Formal Financial Sectors in Ethiopia: A Study of the Iqqub, Iddir, and Savings and Credit Cooperatives", AERC Research Paper 21, October.
- Aryeetey, E. 1992. "The Relationship Between the Formal and Informal Sectors of the Financial Market in Ghana", AERC Research Paper 10, October.
- Barro, R. 1991. "Economic Growth in a Cross Section of Countries", *Quarterly Journal of Economics*, pp. 407-443.
- Bencivenga, V.R. and B. Smith. 1991. "Financial Intermediation and Endogenous Growth", *The Review of Economic Studies*, April, pp. 195-209.
- Chamley, C. and P. Honohan. 1990. "Taxation of Financial Intermediation: Measurement Principles and Applications to Five African Countries", World Bank, WPS 421, May.
- Chipeta, C. and M.L.C. Mkandawire. 1992. "Links Between the Informal and Formal/Semi-Formal Financial Sectors in Malawi", AERC Research Paper 14, November.
- De Gregorio, J. and P. Guidotti. 1992. "Financial Development and Economic Growth", mimeo.
- Gelb, A.H. 1989. "Financial policies, growth and efficiency." PRE Working Paper 202. Washington, D.C: World Bank.
- Gertler, M. 1987. "Financial Structure and Aggregate Economic Activity: An Overview", *Journal of Money, Credit, and Banking*, August, pp. 559-588.
- Gertler, M. and A. Rose. 1991. "Finance, Growth, and Public Policy", World Bank, WPS 814, December.
- Giovannini, A. and M. de Melo. 1993. "Government Revenue From Financial Repression", *American Economic Review*, September, pp.953-963.
- Greenwald, B. and J. Stiglitz. 1989. "Financial Market Imperfections and

Productivity Growth", NBER Working Paper 2945.

Greenwood, J. and B. Jovanovich. 1990. "Financial Development, growth, and the Distribution of Income", *Journal of Political Economy*, October, pp. 1076-1107.

Easterly, W., King, R., Levine, R. and Rebelo, S. 1992. "How Do National Policies Affect ong-Run Growth?, A Research Agenda", World Bank discussion paper 164.

Hadjimichael, M., T. Rumbaugh, and E. Verreydt. 1992. *The Gambia: Economic Adjustment in a Small Open Economy*, International Monetary Fund Occasional Paper 100, October.

Hyuha, M., M.O. Ndanshau, and J.P. Kipokola. 1993. "Scope, Structure, and Policy implications of Informal Financial Markets in Tanzania", AERC Research Paper 18, April.

Ikhide, S. I. 1992. "Financial Deepening, Credit Availability, and the Efficiency of Investment: Evidence from Selected African Countries", UN Economic Commission for Africa, Development Research paper No. 2, October.

Japelli, T. and M. Pagano. 1994. "Saving, Growth, and Liquidity Constraints", *Quarterly Journal of Economics*, February, pp. 83-110.

Kapur, I., M. Hadjimichael, P. Hilbers, J. Schiff, and P. Szymczak. 1991. *Ghana: Adjustment and Growth, 1983-91*, International Monetary Fund Occasional Paper 86, September.

King, R.G. and R. Levine. 1993. "Finance, Entrepreneurship, and Growth: Theory and Evidence", *Journal of Monetary Economics*, 32, pp. 513-542.

Levine, R. 1992. "Financial Indicators and Growth in a Cross Section of Countries", WPS 819, January.

Levine, R. 1991. "Stock Markets, Growth, and Tax Policy", *Journal of Finance*, September, pp. 1445-1465.

Levine, R. 1990 and 1992. "Financial Structure and Economic Development", *IFDP* No. 381, and WPS 849, February.

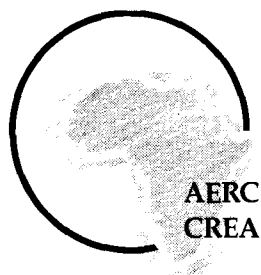
Levine, R. and D. Renelt. 1991. "Cross-Country Studies of Growth and Policy: Methodological, Conceptual, and Statistical Problems", World Bank WPS 608, March.

- Levine, R. and Zervos, S. 1993. "Looking at the Facts: What we Know about Policy and Growth from Cross-Country Analysis", World Bank WPS 1115, March.
- McKinnon, R.I. 1973. *Money and Capital in Economic Development* Washington, D.C.: The Brookings Institution.
- Nissanke, M. 1991. "Mobilizing Domestic Resources for African Development and Diversification: Structural Impediments to Financial Intermediation", in A. Chhibber and S. Fischer (eds.), *Economic Reform in Sub-Saharan Africa*. Washington, D.C.: World Bank.
- Pagano, M. 1993. "Financial Markets and Growth: An Overview", *European Economic Review*, pp. 613-622.
- Rebelo, S. 1991. "Long-run policy analysis and long-run growth", *Journal of Political Economy*, 99: 500-521.
- Roubini, N. and X. Sala-i-Martin. 1991. "Financial Development, the Trade Regime, and Economic Growth", NBER Working Paper 3876, May.
- Roubini, N. and X. Sala-i-Martin. 1992a. "A Growth Model of Inflation, Tax Evasion, and Financial Repression", NBER Working Paper 4062, May.
- Roubini, N. and X. Sala-i-Martin. 1992b. "Financial Repression and Economic Growth", *Journal of Development Economics*, vol. 39, pp. 5-30.
- Saint-Paul, G. 1992. "Technological Choice, Financial markets, and Economic Development", *European Economic Review*, vol. 36, pp. 763-781.
- Shaw, E.S. 1973. *Financial Deepening in Economic Development*. New York: Oxford University Press.
- Soyibo, A. and F. Adekanye. 1992. "The Nigerian Banking System in the Context of policies of Financial Regulation and Deregulation", AERC Research Paper 17, December.
- Stiglitz, J.E. 1993. *The Role of the State in Financial Markets*, Proceedings of the World Bank on *Annual Conference on Development Economics*, p.19-52.
- Tseng, W. and R. Corker. 1991. "Financial Liberalization, Money demand, and Monetary Policy in Asian Countries", *IMF Occasional Paper*, vol. 84, July.
- Turtleboom, B. 1991. "Interest Rate Liberalization: Some Lessons From Africa", IMF Working Paper WP/91/121, December.

Villanueva, D. and A. Mirakhor. 1990. "Strategies for Financial Reforms", *IMF Staff Papers*, September, pp. 509-536.

World Bank. 1994a. *The East Asian Miracle: Economic Growth and Public Policy*. New York: Oxford University Press.

World Bank. 1994b. *Adjustment in Africa: Reforms, Results, and the Road Ahead*. New York: Oxford University Press.



AFRICAN ECONOMIC RESEARCH CONSORTIUM

P.O. BOX 62882
NAIROBI, KENYA

TELEPHONE (254-2) 228057
225234 215898 212359
332438 225087

TELEX 22480

FAX (254-2) 219308

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